

**Amendments to the Drawings:**

The attached sheets of drawings include changes to Figures 1, 8, 10 and 11. These sheets, which include Figures 1, 8, 10 and 11, replace the original sheets including Figures 1, 8, 10 and 11.

Attachment: Replacement Sheets

**REMARKS / ARGUMENTS**

In view of the foregoing amendments and the following remarks, the applicants respectfully submit that the pending claims comply with 35 U.S.C. § 112, are not anticipated under 35 U.S.C. § 102 and are not rendered obvious under 35 U.S.C. § 103. Accordingly, it is believed that this application is in condition for allowance. **If, however, the Examiner believes that there are any unresolved issues, or believes that some or all of the claims are not in condition for allowance, the applicants respectfully request that the Examiner contact the undersigned to schedule a telephone Examiner Interview before any further actions on the merits.**

The applicants will now address each of the issues raised in the outstanding Office Action.

**Objections**

Figures 1, 8, 10 and 11 were objected to. New Figures, which have no dark shading nor hand drawn reference symbols, are filed herewith. Accordingly, this objection should be withdrawn.

The specification stands objected to as not describing the reference numbers of Figure 10. The applicants respectfully submit that these elements are described and direct the Examiner's attention to page 15, lines 3 et seq.

Claims 20 (second instance)-25 have been renumbered 21-26.

**Rejections under 35 U.S.C. § 112**

Claims 2, 11, 16 and 17 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention. The applicants respectfully request that this ground of rejection be withdrawn in view of the clarifying amendments made based on the Examiner's helpful suggestions.

**Rejections under 35 U.S.C. § 102**

Claims 1 and 10 stand rejected under 35 U.S.C. § 102(a) as being anticipated by Airola et al (Proceedings of SPIE, 2002). The applicants respectfully request that the Examiner reconsider and withdraw this ground of rejection in view of the following.

Claims 1 and 10 are not anticipated by the Airola paper at least because the Airola paper does not disclose a sensor including a microsphere having a surface including receptors for the substance, ***wherein the receptors are provided substantially at a belt surface area including an equator of the microsphere, and wherein surface areas of the microsphere other than the belt surface area are substantially free of receptors.***

**Rejections under 35 U.S.C. § 103**

Claims 1, 2, 4, 5, 10, 11, 13, 14, 19-22, 24 and 25 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Publication No. 2002/0097401 A1 ("the Maleki publication") in view of U.S. Publication No. US 2004/0023396 A1 ("the Boyd publication"). The applicants respectfully request that the Examiner reconsider and withdraw this ground of rejection in view of the following.

Independent claims 1, 10 and 19 are not rendered obvious by the Maleki and Boyd publications at least because there is no suggestion to combine these references as proposed by the Examiner. Specifically, the Examiner concedes that the Maleki publication fails to teach a sensor including a microsphere having a surface including receptors for the substance, ***wherein the receptors are provided substantially at a belt surface area including an equator of the microsphere, and wherein surface areas of the microsphere other than the belt surface area are substantially free of receptors.***

(See Paper No. 20050506, page 7.) In an attempt to try to compensate for this admitted deficiency of the Maleki patent publication, the Examiner relies on the Boyd patent publication, arguing that (1) it teaches probes coupled to a limited region on the surface of a resonator, citing paragraph 0028, and (2) one skilled in the art would have been motivated to modify the apparatus of the Maleki publication with probes coupled to a limited region on the surface of a resonator since that

is where probes taught by the Boyd publication are confined.

First, the Boyd patent publication merely concerns **including** probes in the region of a ring or disk where light is confined. **It is silent on whether or not the rest of the ring or disk is free of probes.** Accordingly, claims 1, 10 and 19 are not rendered obvious by the Maleki and Boyd patent publications for at least this reason.

Second, one skilled in the art would not have been motivated to modify the Maleki **microsphere** sensor in view of the Boyd sensor because **the Boyd sensors are limited to ring and disk resonators** and the Boyd patent publication has no suggestion to apply its teachings to microsphere resonators. Accordingly, claims 1, 10 and 19 are not rendered obvious by the Maleki and Boyd patent publications for at least this additional reason.

Since claims 2, 4 and 5 depend from claim 1, since claims 11, 13 and 14 depend from claim 10, and since claims 20-22, 24 and 25 depend from claim 19, these claims are similarly not rendered obvious.

Claims 3, 6, 12, 15, 23, and 26 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the Maleki publication in view of the Boyd publication as applied to claims 1, 10, and 19, and further in view of Ganapolskii et al (Measurement Science and Technology, 1997) and U.S. Patent No. 4,912,087 ("the Aslam patent") and in light of U.S. Patent No. 3,984,524 ("the Alexandrov patent"). The applicants respectfully request that the Examiner reconsider and withdraw this ground of rejection in view of the following.

Since the purported teachings of Ganapolskii, the Aslam patent, and the Alexandrov patent fail to compensate for the deficiencies of the Maleki and Boyd publications as applied to claims 1, 10 and 19 above, these claims are similarly not rendered obvious by these patents for at least the reasons discussed above.

Furthermore, the Examiner is apparently picking and choosing snippets from various disparate references without the benefit of any suggestion in the references. This is evidence of the use of impermissible hindsight in the rejection.

Claims 7, 8, 16 and 17 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the Maleki publication in view of the Boyd publication as applied to claims 1 and 10, and further in view of the Boyd publication (Applied Optics, 2001) ("the Boyd paper"). The applicants respectfully request that the Examiner reconsider and withdraw this ground of rejection in view of the following.

Since the purported teachings of Boyd paper fail to compensate for the deficiencies of the Maleki and Boyd publications as applied to claims 1 and 10 above, these claims are similarly not rendered obvious by these patents for at least the reasons discussed above.

Furthermore, the Examiner is apparently picking and choosing snippets from various disparate references without the benefit of any suggestion in the references. This is evidence of the use of impermissible hindsight in the rejection.

Claims 9 and 18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the Maleki publication in view of the Boyd publication as applied to claims 1 and 10, and further in view of U.S. Patent No. 5,602,102 ("the Thiele patent"). The applicants respectfully request that the Examiner reconsider and withdraw this ground of rejection in view of the following.

Since the purported teachings of the Thiele patent fail to compensate for the deficiencies of the Maleki and Boyd publications as applied to claims 1 and 10 above, these claims are similarly not rendered obvious by these patents for at least the reasons discussed above.

Furthermore, the Examiner is apparently picking and choosing snippets from various disparate references without the benefit of any suggestion in the references. This is evidence of the use of impermissible hindsight in the rejection.

Finally, even assuming, arguendo, that the Thiele patent teaches detecting dipeptidyl peptidase-I, and further assuming, arguendo, that it has a molecular weight of 200,00 Da, this does not teach or suggest that the shift in resonance of the microsphere **is detectable when any of the receptors** in the belt surface area **capture a single molecule** having a mass of about 200,000 Da. Thus, claims 9 and 18 are not rendered obvious for at least these additional reasons.

### Conclusion

In view of the foregoing amendments and remarks, the applicant respectfully submits that the pending claims are in condition for allowance. Accordingly, the

applicants request that the Examiner pass this application to issue.

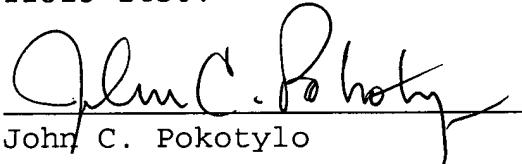
Respectfully submitted,

November 17, 2005

  
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**CERTIFICATE OF MAILING under 37 C.F.R. 1.8(a)**

I hereby certify that this correspondence is being deposited on **November 17, 2005** with the United States Postal Service as first class mail, with sufficient postage, in an envelope addressed to Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

  
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